

List of Claims:

1. (Previously Presented) A method of furnishing a location service comprising:
transmitting a specific signal pattern at given intervals from at least three base stations, wherein a location of a mobile terminal or station that receives said signal pattern is located by using positional information about said base stations, sending timing or information on a phase shift from reference time of each said signal pattern from said base stations, and signal pattern receiving time information;
deliberately making a change to the sending timing of said signal pattern from at least one of said base stations; and
responsive to the change of the sending timing of the signal pattern, notifying said mobile terminal or station of an altered reference time offset or information on a phase shift from the reference time of said sending timing or updated sending timing of said signal pattern.
2. (Previously Presented) The method of furnishing a location service according to claim 1, wherein in response to a request issued from said mobile terminal or station to at least one of said base stations, said altered reference time offset or updated sending timing of said signal pattern is sent to said mobile terminal or station.
3. (Previously Presented) The method of furnishing a location service according to claim 2, wherein said altered reference time offset or updated sending timing of said signal pattern is sent to said mobile terminal or station after receiving information identifying said mobile terminal or station together with said request, and verifying the identification of said mobile terminal or station.
4. (Original) The method of furnishing a location service according to claim 2, wherein charging data for said mobile terminal or station is updated in response to said request.

5. (Previously Presented) The method of furnishing a location service according to claim 1, wherein:

said mobile terminal or station is furnished with a decrypting key; and

said base stations include at least three base stations, each of the base stations encrypts said altered reference time offset or updated sending timing of each said signal pattern transmitted from the base stations and broadcasts the encrypted information over a broadcast channel or control channel.

6. (Previously Presented) The method of furnishing a location service according to claim 1, wherein the sending timing of said signal pattern from at least one of said base stations is changed regularly.

7. (Previously Presented) The method of furnishing a location service according to claim 1, wherein said base stations include at least three base stations, each of the base stations broadcasts positional information about a position of the broadcasting base station and neighboring base stations over a broadcast channel or control channel in response to a request received from the mobile terminal or station.

8. (Previously Presented) The method of furnishing a location service according to claim 3, wherein said mobile terminal or station is notified of said altered reference time offset or sending timing of said signal pattern on one of different precision levels, according to an agreement between the owner of the mobile terminal or station and the administrator of said base stations.

9. (Previously Presented) The method of furnishing a location service according to claim 2, wherein if said request is issued from said mobile terminal or station while the sending

timing of said signal pattern is changed, a message representing that a location determination is not possible is sent to said mobile terminal or station.

10. (Previously Presented) A method of furnishing a location service wherein a location of a mobile terminal or station is determined using sending timing of signal patterns transmitted from a plurality of base stations, and receiving timing of said signal patterns at the mobile terminal or station, the method comprising the steps of:

deliberately making a change to the sending timing of a specific signal pattern of radio waves transmitted at given intervals from a base station regularly; and

notifying the mobile terminal or station of an altered reference time offset of said sending timing or updated sending timing of said signal pattern.

11. (Original) The method of furnishing a location service according to claim 10, wherein the identification of said mobile terminal or station is verified and said mobile terminal or station is notified of the altered reference time offset of said sending timing or updated sending timing of said signal pattern.

12. (Previously Presented) The method of furnishing a location service according to claim 11, wherein said mobile terminal or station is notified of said altered reference time offset or updated sending timing of said signal pattern on one of different precision levels, according to an agreement between the owner of the mobile terminal or station and the administrator of at least three base stations including said base station.

13. (Previously Presented) The method of furnishing a location service according to claim 11, wherein charging data for said mobile terminal or station is updated when the identification of said mobile terminal or station is verified.

14. (Previously Presented) The method of furnishing a location service according to claim 10, wherein:

said mobile terminal or station is furnished with a decrypting key; and

said base station encrypts said altered reference time offset or updated sending timing of said signal pattern transmitted from the base station, and broadcasts the encrypted information over a broadcast channel or control channel.

15. (Previously Presented) A method of furnishing a location service comprising:

deliberately making a change to the sending timing of a specific signal pattern of radio waves transmitted at given intervals from a base station regularly or at irregular intervals;

calculating the location of a mobile terminal or station, based on the receiving timing of said signal pattern received at said mobile terminal or station; and

notifying said mobile terminal or station of a result of the calculating step .

16. (Previously Presented) The method of furnishing a location service according to claim 15, wherein the identification of said mobile terminal or station is verified.

17. (Previously Presented) The method of furnishing a location service according to claim 16, wherein said mobile terminal or station is notified of the result of the calculating step using one of different precision levels, according to an agreement between the owner of the mobile terminal or station and the administrator of said base station.

18. (Previously Presented) The method of furnishing a location service according to claim 16, wherein charging data for said mobile terminal or station is updated when the identification of said mobile terminal or station is verified.

19. (Previously Presented) A method for locating a mobile terminal or station comprising the steps of:

sending an ID of the mobile terminal or station, and a request for information on the sending timing of a specific signal pattern transmitted at given intervals from base stations in the vicinity of the mobile terminal or station to a base station in a zone in which the mobile terminal or station locates ; and

determining a location of the mobile terminal or station based on an answer from said base station in the zone in which the mobile terminal or station locates, and respective receiving timing of the signal pattern from each of said base stations in the vicinity of the mobile terminal or station.

20. (Cancelled)

21. (Previously Presented) The method of claim 19, wherein said mobile terminal or station receives information related to positions of the base stations in the vicinity of the mobile terminal or station over a broadcast channel or control channel from the base station in the zone in which the mobile terminal or station locates.

22. (Previously Presented) A location system comprising at least three base stations and one mobile terminal or station, wherein:

said base stations transmit a specific signal pattern at given intervals;

at least one of said base stations deliberately changes the sending timing of said signal pattern; and

said mobile terminal or station determines a location of the mobile terminal or station based on an altered reference time offset associated with the changed sending timing of said signal pattern or updated sending timing of said signal pattern, positional information about said

base stations, and information on receiving timing of each said signal pattern from said base stations.

23. (Previously Presented) A location system comprising at least three base stations and one mobile terminal or station, wherein:

said base stations transmit a specific signal pattern at given intervals;

at least one of said base stations deliberately changes the sending timing of said signal pattern;

said base stations broadcast encrypted information on sending timing of said signal pattern transmitted from the base stations over at least one broadcast channel or control channel; and

said mobile terminal or station decrypts the encrypted information on sending timing of said signal pattern transmitted from base stations located in the vicinity of the mobile terminal or station by using a decrypting key, and determines a location of the mobile terminal or station based on the decrypted information, positional information about said base stations, and information related to receiving timing of each said signal pattern from said base stations.

24. (Original) The location system according to claim 22 further comprising a server for storing the information on sending timing of each signal pattern transmitted from said base stations.

25. (Original) The location system according to claim 24, wherein said server instructs said base stations to change the sending timing of signal pattern.

26. (Withdrawn) A location system comprising at least three base stations and one mobile terminal or station, wherein:

said base stations transmit a specific signal pattern at given intervals;
at least one of said base stations changes the sending timing of said signal pattern;
said mobile terminal or station notifies a base station in the zone where it stays of the
information on receiving timing of each said signal pattern transmitted from said base stations;
a base station in the zone where said mobile terminal or station stays or a server to which
the base station connected calculates the location of said mobile terminal or station; and
the base station in the zone where said mobile terminal or station stays notifies said
mobile terminal or station of the result of calculation.

27. (Withdrawn) The location system according to claim 26, wherein said server
stores the information on sending timing of each said signal pattern transmitted from said base
stations.

28. (Withdrawn) The location system according to claim 27, wherein said server
instructs said base stations to change the sending timing of said signal pattern.

29. (Withdrawn) A base station comprising:
a specific signal generator that generates a specific signal pattern which is transmitted at
given intervals from said base station;
a timing change unit that changes the sending timing of said signal pattern;
a generator of sending timing information that generates changed sending timing
information; and
a transmitting unit that transmits said signal pattern and said sending timing information.

30. (Withdrawn) The base station according to claim 29, further comprising:
a receive unit that receives ID from a mobile terminal or station; and

a decision unit that judges whether said ID matches the registered one,
wherein said transmitting unit transmits said signal pattern, according to the judgment of
said decision unit.

31. (Withdrawn) A base station comprising:
a specific signal generator that generates a specific signal pattern which is transmitted at
given intervals from said base station;
a timing change unit that changes the sending timing of said signal pattern;
a sending timing information encryptor that encrypts changed sending timing
information; and
a transmitting unit that transmits said signal pattern and the encrypted sending timing
information.

32. (Withdrawn) A base station comprising:
a specific signal generator that generates a specific signal pattern which is transmitted at
given intervals from said base station;
a timing change unit that changes the sending timing of said signal pattern as instructed
by a server;
a forwarding unit that forwards the information on a mobile terminal's or station's
receiving timing of each signal pattern transmitted from at least three base stations to the server;
and
a transmitting unit that transmits said signal pattern and delivers the result of calculating
the location of said mobile terminal or station received from said server to said mobile terminal
or station.

33. (Withdrawn) A server to which at least three base station connect including:
a storage means for storing the information on sending timing of a specific signal pattern transmitted at given intervals from said base stations.

34. (Withdrawn) The server according to claim 33, further including:
a generator of instruction to change sending time for controlling the sending timing of each signal pattern from the said base stations; and
a transmitting unit that transmits the instruction to change the sending timing to the above base stations.

35. (Withdrawn) The server according to claim 33, further including:
a calculating unit that calculates the location of said mobile terminal or station by using the information on the mobile terminal's or station's receiving timing of signal pattern, which the server received via one of the above base stations, sending timing of each signal pattern from the base stations, and the positional information about the base stations.

36. (Withdrawn) A mobile terminal or station to locate itself comprising:
a receive circuit that receives the information on sending timing of a specific signal pattern that at least three base stations are transmitting at given intervals from anyone of said base stations;

a memory that retains the positional information about said base stations;
a circuit to measure receiving time that measures the receiving timing of each signal pattern transmitted from the above base stations; and
a calculate circuit that calculates the location of the mobile terminal or station by using the above information on sending timing, the positional information about the above base

stations, and the information on timing of receiving each signal pattern from the above base stations.

37. (Withdrawn) A mobile terminal or station to locate itself comprising:

- a receive circuit that receives the encrypted information on sending timing of a specific signal pattern that at least three base stations are transmitting at given intervals over the broadcast channel or control channel from anyone of said base stations;
- a decryptor that decrypts said encrypted information;
- a memory that retains the positional information about said base stations;
- a circuit to measure receiving time that measures the receiving timing of each signal pattern transmitted from the above base stations; and
- a calculate circuit that calculates the location of the mobile terminal or station by using the above information on sending timing, the positional information about the above base stations, and the information on timing of receiving each signal pattern from the above base stations.

38. (Withdrawn) A method of supplying signal pattern sending timing information wherein:

- a plurality of levels of location precision based on the information on sending timing of a specific signal pattern transmitted at given intervals from a base station are provided;
- a level of location precision is predetermined by the agreement between the owner of a mobile terminal or station and the administrator of the base station and the mapping between this level and each mobile terminal or station is stored in a storage device; and
- in response to the request from said mobile terminal or station, said mobile terminal or station is notified of said sending timing on a precision level predetermined by said agreement.

39. (Withdrawn) A method of supplying specific signal sending timing information whereby:

an decrypting key is installed into a mobile terminal or station;

the sending timing of a specific signal pattern periodically transmitted from a base station is changed regularly or at irregular intervals; and

the information on said sending timing is encrypted and broadcasted.

40. (Withdrawn) The method of supplying signal pattern sending timing information according to claim 39, wherein:

a plurality of levels of location precision based on the information on said sending timing are provided;

each level of said information is encrypted and broadcasted;

a decrypting key for decrypting such information on a precision level predetermined by the agreement between the owner of the mobile terminal or station and the administrator of the base station is installed into said mobile terminal or station.

41. (Withdrawn) A method of supplying signal pattern sending timing information whereby:

a plurality of levels of location precision based on the information on sending timing of a specific signal pattern periodically transmitted from a base station are provided;

a level of location precision is predetermined by the agreement between the owner of a mobile terminal or station and the administrator of the base station and the mapping between this level and each mobile terminal or station is stored in a storage device;

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the location of said mobile terminal or station is calculated on the level of location precision predetermined by said agreement, based on the information on said mobile terminal's or station's receiving timing of said signal pattern;

said mobile terminal or station is notified of the result of calculation.